HICCOUGH. REPORT OF A CASE.

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A complete study of hiccough from a physiological and pathological point of view remains yet to be made. From a clinical standpoint this is much more worked out. Historically the subject is one of great interest, as it has been observed and commented on among our earliest medical writings; in fact, the bibliography is very voluminous, and though of use to those whose tastes lead them into such investigations, they will reward us with little of practical value, as the observers were more led by theoretical ideas than by observation of facts—a reproach, indeed, from which modern medicine cannot by any means escape.

R. M., American, aged seventy-nine years, a large, well-nourished old man. One week ago he began to hiccough; he could attribute no cause for it. When first observed during the earlier three days there would be intervals when the condition ceased entirely, but for the past four days he complains that he has hiccoughed uninterruptedly night and day. At first he had lived on his ordinary meals and diet, but later this had caused vomiting in addition to the already existing hiccough, and for the past couple of days he had taken nothing but tea and crackers. When first seen—on the eighth day—his countenance bore a very anxious expression. The color of the skin and mucosa suggested cyanosis from defective aëration of the blood due to the inefficient respiratory efforts. The tongue was coated with a thick, white, pasty fur; his bowels had not moved for the past four days. Examination of the thoracic organs revealed nothing abnormal beyond some emphysema, so common in stout, aged people. The heart was large, but no murmurs could be detected. Examination of the abdomen showed nothing excepting double inguinal hernia. These were large and descended well into the scrotum. They were easily reduced and retained by compresses and a spica bandage of the groin. In fact, this was done immediately on their discovery, as such a condition was very suggestive as a causative factor of the vomiting, hiccough, and constipation, though there was no abdominal distention; but the replacement of the herniæ produced no amelioration of the symptoms.

The medical treatment was begun by the time-honored giving of a large calomel and soda purge. A mustard plaster was applied to the epigastric and left hypochondriac regions (a very large one), and kept on as long as it could be borne. After the calomel had acted well, he was given a mixture containing bismuth subnitrate, dilute nitric acid, and spirits of chloroform in compound tincture of cardamom; this was to be given every hour while the hiccough lasted, and to be repeated should it return. The diet, which had hitherto been restricted in no way, was to be limited to the white of an egg stirred up in six ounces of cool water, alternating this every other feeding with clam-broth or juice. (The best and simplest manner of obtaining this is by heating six large, well-cleaned clams, unopened, in a pot; as soon as they open the juice is strained off; if too salt, it can be diluted with a few tablespoonfuls of water.)

After the fourth dose of the mixture and pretty severe counterirritation by the mustard plaster, the hiccough ceased, and did not recur for three hours, when it was again controlled by the mixture, so that he passed a whole night without any hiccough. The following morning, unfortunately, it began again at an early hour more severely than ever. A repetition of the former treatment being unsuccessful, he was given twenty grains of chloral by the mouth. In the course of ten minutes it began to exert its well-known power to stop such spasmodic movements, and in half an hour the hiccough had entirely ceased. This interval lasted eight hours, when a second dose of the same size was given, almost immediately controlling the spasmodic movements. Subsequently the chloral had to be repeated twice, when the tendency to a recurrence of the hiccough ceased.

It is now some three months since this case was under observation, and the old man is enjoying his usual extraordinary good health.

In old or enfeebled persons hiccough can be the direct cause of death, which is attributable to the effects of the long continuance of the diaphragmatic choreic spasms on the performance of vital functions. This is markedly seen in its action on respiration, causing deficient aëration of the blood. As the disease is usually aggravated by the ingestion of food, the patient will soon begin to suffer from the deprivation of needed sustenance. Again, it is impossible to sleep owing to the violent sudden commotions given to the whole body at each spasmodic descent of the diaphragm.

The acts which take place and occur in succession to produce the phenomenon of hiccough are contraction of the diaphragm, convulsive agitation of the abdomen and thorax, vibration of the glottis producing a characteristic sound. The contraction of the diaphragm is the initial act; it is brisk, spasmodic, and involuntary, and consists in tension of its mass and its descent, and has for its effect the crowding of the contents of the upper abdomen. The respiratory movement determines a rush of air through the respiratory tract, which is sudden and violent. This column of air coming in contact with a flaccid glottic orifice produces the accompanying sound, as the normal glottic dilatation of inspiration does not take place. These phenomena repeat themselves many times.

All the muscular phenomena which go to make up the respiratory act are innervated in the centre for this movement in the medulla, but being as it is a most complex act, there are a great variety of central, intermediary, and peripheral places where stimuli may produce disorder of the proper concensus of the muscular actions.

Direct irritating lesions of the respiratory centre, either inflammatory or from neoplasms, have been accompanied by hiccough as a symptom. The hiccough seen during the infectious diseases, or in defective elimination of physiological products, can be viewed as of central origin, due to the effect of poisons circulating in the central nervous system. As an example of hiccough from the effect of toxic agents, may be mentioned the *hoquet tobagique*, of the French, due to tobacco poisoning.

Any irritation of the phrenic nerve from its origin in the cervical plexus, or of its fibres in the cervical cord, may cause this phenomenon, as it has been observed in transverse myelitis of this region, associated with slow pulse, dysphagia, dyspnoea, and myosis. It has also been observed during the course of neuralgia of the branches of this plexus (probably a neuritis). Direct irritation of the phrenic nerve by tumors of the mediastinum, aneurisms, pneumonia, and pleuritic effusions (if the mediastinal pleura is involved), may cause hiccough. The same may be said of the nerve in its course before entering the mediastinum, where it may be irritated by enlarged glands, abscess, tumors, or aneurisms.[1]

The frequent occurrence of hiccough during the course of diaphragmatic pleurisy has led Geuneau de Mussy to regard it as being caused by a neuritis of the terminal filaments of the phrenic nerve. Though it has not been observed as an unfailing accompaniment of this disease, it has been seen frequently enough to make it suggestive of this condition.

Since hiccough is (in by far the greatest number of cases) caused by abdominal derangements, we must agree with Gowers[2] "that the curious phenomena of hiccough may be connected with affections of this nerve (pneumogastric), as they certainly are with the respiratory centre." Perhaps the most common cause of hiccough is an overfull stomach; and next most frequent, distention of the stomach with "wind," or, as Hippocrates puts it, "*Convulsio fit aut a repletione, aut ab evacuone, sic etiam singultus.*" In many people the ingestion on an empty stomach of hot drink or food will bring on a paroxysm, as will also brandy, liqueurs, or food highly seasoned with red pepper, and such like condiments. It is met with in all forms of stomach disease accompanied by digestive difficulties, catarrhal, ulcer, cancer, and gastralgia. "The existence of hiccough is a sign of some value in cancer of the stomach when the question arises in cases where the growth cannot be palpated, as it is a not infrequent symptom of cancer of the cardiac region or vicinity."[3]

All forms of irritation or inflammation of the intestinal mucosa are frequently attended with hiccough, indigestion, worms, dysentery, etc.

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[1] Rosenthal. Diseases of the Nervous System, vol. ii. p. 225.

[2] Diseases of the Nervous System, vol. ii. p. 295.

[3] Dict. Ency. des Sci. Med., T. xiv. p. 425.

Irritation and inflammation of the liver and its gall-bladder or ducts are also among the frequently observed causes of hiccough. Any cause of obstruction to the onward movement of the intestinal contents is usually accompanied by this affection, as in paralysis of the intestinal walls, or in obstruction of the continuity of the intestinal tube by its contents, or from causes outside the tube in the form of bands, neoplasms, etc., or by volvulus, intussusception, strangulated hernia, etc. It is common during the course of acute peritonitis, and from observation of it in this disease and during the course of intestinal obstruction among its terminal manifestations, Hippocrates regarded it as a sign of evil omen—"*ex vomitione singultus, Malum.*"

Hiccough occurring during the course of typhoid fever or any ulcerative intestinal disease should suggest perforation of the intestine.[1] The disease is frequently observed in uræmic states, and very often is among the terminal symptoms in genito-urinary infections, as in the pyelonephritis arising from bladder infection in chronic cystitis due to prostatic obstruction. In the first, we are dealing with a hiccough of central origin due to the toxæmic condition; in the latter, both peripheral and central causes can be factors in the hiccough.

Among the protean manifestations of that capricious neurosis—hysteria—hiccough is a not infrequent symptom, and may be regarded as of central origin. In this class may be placed those cases where the hiccough has followed fright or some violent emotion. Among the older writers on this subject instances are recorded where the hiccough was of several years' duration, a fatal result being averted by occasional cessations of the spasmodic movements. The application of the well-known physiological law of the tendency to repetition of accustomed movements will be suggested by the long continuance in these cases.

Owing to the great variety of conditions which may give rise to hiccough, the means found successful in its treatment has been of the most extreme diversity; but naturally its treatment consists in the removal (if possible) of the morbid condition giving rise to it. At the same time we may have to treat it entirely symptomatically, for, as we have previously stated, it may be productive of a condition in debilitated persons resulting in death.

In the simplest form, as seen, for instance, in infants, and due to overdistention of the stomach with food or wind, emesis or a carminative is indicated.

Occuring in adults and due to simple gastric irritation, large doses of bismuth subnitrate, perhaps combined with some aromatic substance, as the compound tincture of cardamom, and spirits of chloroform, will be often successful. Small doses of dilute nitric acid added to these are seemingly useful also.

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[1] Quain's Dictionary of Medicine, article Hiccough.

When a case proves rebellious to remedies directed only to the correction of the apparent cause of the hiccough, we may then resort to medicines of a purely antispasmodic character. Of these chloral has been found to be pre-eminently the most effective, and should be given in a full dose. As much as twenty grains can be repeated at hourly intervals until sixty grains have been taken. Should the hiccough still continue, it is probable the chloral will not be successful in larger and also, perhaps, dangerous doses. The bromides have not shown themselves so useful in the cases where gastric irritation was largely the factor in its production. In these cases it is of the greatest benefit to apply counterirritation to the epigastrium, for which a mustard plaster is usually the most readily found to hand. The diet in these cases is also of the first importance, and must be of the blandest description: albumin water, weak chicken tea, of clam juice or broth, until the gastric irritation has been allayed.

It would be to no purpose to enumerate the great variety of drugs that have been advised for hiccough. Among the many means recommended, however, several are worthy of mention as having been frequently successful. It has been known that the act of sneezing will break up the morbid train of phenomena that go to make up the act of hiccoughing. To provoke it, remedies called sternutatories were used. The easiest one of these to find is ordinary tobacco in the form of snuff.

As any violent emotion can produce hiccough, so it has also been known to stop it. Dupuytren cured a protracted case instantly by the application of the actual cautery to the epigastrium—a remedy, we doubt, would be submitted to by many.

Of mechanical measures, direct pressure on the phrenic nerves at the root of the neck, forced flexure of the head on the thorax, and deep, continuous pressure in the epigastrium are said to have caused a cessation of the spasm.

When hiccough arises in hysterical subjects, it is well to begin with the milder antispasmodics, such as valerian or the valerianates, passing on in case of non-success to more powerful drugs—chloral, apomorphia, or hyoscine hydrobromate. Counterirritation of the upper cervical spine, or of the epigastrium, ovarian pressure, and spraying the epigastrium with ether have all been successful, but usually fail when frequently repeated.

The hiccough due to sudden large losses of fluid from the body by hemorrhage, or in Asiatic cholera, is relieved by its restitution through the means of normal saline solution introduced in any of the various ways—entero, hypodermo, or venous.